How the voice works and how to look after your voice

Speech and Language Therapy Department
Community and Therapy Services

This leaflet has been designed to give you important information about how your voice works.
How the Voice Works:

What is voice?
Voice is the sound produced by the vibration of the two vocal cords. The vocal cords are located in the larynx or the ‘voice box’ and are two bands of smooth muscle that lie opposite each other, and are stretched across the larynx from front to back.

The Larynx / Voicebox
The larynx sits at the top of your trachea or ‘windpipe.’ More specifically it is positioned between the bottom of your tongue and the top of the windpipe. It is made up of cartilages, muscles and soft tissue. The largest cartilage in the larynx is called the thyroid cartilage, and this is more commonly known as the ‘Adam’s apple.’ This can be seen or felt protruding from the front of the neck and is more prominent in men. The vocal cords are tiny; in fact they are no bigger than a five pence piece, and extremely sensitive to irritants.

Voice production
Voice production relies on three key elements working together:
1. Breathing
2. Phonation - vibration of the vocal cords within the larynx
3. Resonance - the shaping and colouring of sounds

When we are breathing in and out at rest the vocal cords are wide apart and the air passes freely through the larynx. Voice and speech is produced when we are breathing out. When we produce voice, messages are sent from the brain through our nerves to the sets of muscles involved and the following happens:
- Muscular activity brings the vocal cords together precisely
- Air from the lungs passes between the vocal cords which makes them vibrate and producing a sound - the voice
- This sound then travels in the air stream through the resonating cavities of the throat, nose and mouth

Voice quality
The size and shape of the vocal cords and the resonating cavities (throat, nose and mouth) help to determine voice quality and to give us our individual ‘voice print.’ This is why we each have a different voice that is recognisable as our own.

To change the pitch of the voice, the size and shape of the vocal cords are altered through fine muscle control. High pitch sounds are made when the vocal cords become thin and taut and vibrate at a higher frequency, much like when you stretch an elastic band. Low pitched sounds are produced when the vocal cords are thicker and more lax, and therefore vibrate at a slower rate.

What can go wrong?
There are many different elements involved in good voice production and voice problems usually arise due to a combination of different factors. Your Speech and Language Therapist will spend time explaining how the voice is made and how things can go wrong. Voice therapy involves working with a Speech and Language Therapist to identify factors affecting your voice. The therapist will then provide advice, strategies and specific techniques to
Information for patients and visitors

enhance vocal health and help you use your voice better.

How to Look After Your Voice:

1. Give up smoking
The single most important thing you can do to help your voice is to give up smoking. This is because smoking causes the throat and vocal cords to become inflamed and swollen from the dryness, heat and tar from the tobacco smoke. This can lead to a deep-pitched hoarse voice.

Smoking is the single biggest cause of cancer in the world, and accounts for one in four UK cancer deaths.
http://www.cancerresearchuk.org/cancer-info/healthyliving/smoking-and-cancer

People who smoke and drink alcohol account for 75% of cancers affecting the upper part of the respiratory and digestive tract.
http://www.cancerresearchuk.org/cancer-info/cancerstats/incidence/

Benefits to your health begin the minute you stop smoking:

- After 3 days breathing becomes easier and your energy levels increase
- After 2 weeks withdrawal symptoms begin to ease and walking and daily tasks become easier to do
- After 1 month withdrawal symptoms have stopped and your breathing and energy levels continue to improve
- After 6 months risk of heart attack, cancer and other ‘smoking’ related diseases begins to fall

You can find out more information on the following websites

http://freedomfromsmoke.co.uk
Tel. 0845 603 2166 (local rate calls)
http://www.gosmokefree.co.uk

2. Drink sensibly

Water
To keep your vocal cords healthy, your body needs enough fluid.

General opinion is that 8 glasses (2 litres) a day is about right.

The best fluids for the body are water, squash, herbal teas and juices.

Caffeine

Fluids such as tea, coffee, and fizzy drinks contain caffeine which dehydrates your body. Caffeine also has a drying effect on the vocal cords causing voice changes.

Alcohol

Alcohol in moderation is fine. The Department of Health recommends that men don’t drink more than three or four units of alcohol a day, and that women limit their intake to two or three units a day. You shouldn’t save up units through the week and use them to binge at the weekend, and at least one day a week should be alcohol-free

A pint of strong lager (alcohol 5% vol) equals 3 units.

One standard (175ml) glass of wine (alcohol 12%) equals 2 units.

Excess alcohol dries out the vocal cords and causes voice changes.
3. Eat sensibly
Some people find that eating spicy foods or dairy products makes their voice worse. If you think this might be a problem for you try reducing the amount you have. Research shows that indigestion / acid-reflux can cause voice problems resulting in voice changes such as hoarse voice. This can be improved by making lifestyle changes and / or medication. For more information about reflux / silent reflux and how it affects your voice, please ask your voice therapist.

4. Medication / Remedies
Some drugs can affect your voice e.g. inhalants for asthma and some antihistamines. If you notice any changes to your voice as a result of new medication consult your doctor. If you are using an inhaler you should always rinse your mouth with water after use.

Avoid use of medicated / menthol lozenges and cough sweets. Some throat sweets contain anaesthetic, which masks throat pain and lets you carry on misusing your voice. This means that you might not be aware of the amount of damage you are causing. There is also no evidence to show that gargling helps.

5. Throat clearing / Coughing
When you cough or clear your throat your vocal cords come together with force. If this happens repeatedly you can cause them to become sore, causing voice changes and producing more mucous. This can also cause voice changes. This may have developed into a habit. Instead of coughing or clearing your throat drink water, swallow hard, yawn, or suck a sugar free sweet instead. This will help you to break the habit.

6. Shouting / Raising voice / Voice rest
When shouting or raising your voice your vocal cords come together with force and you increase the muscular tension in your neck. Constant shouting and raising your voice can cause vocal strain (making it work much harder and requiring much more effort). This in turn may increase the likelihood of developing changes to your vocal cords and as a result affecting the sound of your voice.

7. Whispering
Often people feel that whispering can help by giving the voice a rest, however, whilst you are not using your voice it can still cause damage to your voice box. Most people use more pressure, and strain the muscles more when they are whispering then when they are talking. Try to speak in a soft voice instead to reduce effort.

8. Stress
A degree of stress is a necessary part of life but when it becomes prolonged or over powering it can cause physical symptoms, including voice changes.

You may notice that your voice quality changes becoming more strained and hoarse.

9. Relaxation (time for self...)
The voice is part of the muscular system of the body. Since tension in the body may be transmitted to the voice, the ability to relax is fundamental. True relaxation involves the mind and body. It does not just happen, you need to learn how to do it and practice regularly. It is recommended that you take time out to pursue an interest or hobby;
engage in physical activity e.g. swimming, walking, yoga or learn a relaxation technique to increase your ability to identify and release tension.

10. Posture
Any imbalance in posture can cause muscle tension in the body. The best posture for voice is an open relaxed one e.g. uncrossed legs and arms, and a centrally aligned body. If you spend a lot of time talking with your neck twisted, or tilted you will be using your muscles unevenly e.g. when using the telephone, or talking to someone over your shoulder. Especially consider your volume and the posture of your head / neck while on the telephone.

11. Lifting / Straining
Avoid speaking when lifting or straining. Talking while lifting or straining will result in your vocal cords coming together with force and causing strain.

Places you go:

12. Passive smoking
Evidence shows that individuals who spend time in smoky environments can display similar changes to the voice as smokers. Passive smoke causes the throat and vocal cords to become inflamed and swollen from the dryness, heat and tar.

13. Chemicals / Sprays
Avoid air fresheners, plug-ins, and aerosols (e.g. spray deodorant, perfumes, hairsprays). These release chemicals into the air which are inhaled when you breathe. This can irritate the lining of your throat and vocal cords. If you decide to continue to use aerosols, do so in a well-ventilated room.

14. Dry air (Central Heating / Air Conditioning)
Breathing in dry or dusty air can dry out the mucous linings of your throat and vocal cords resulting in voice changes. Centrally heated or air-conditioned environments can cause the air you breathe to become dry. If you spend large amounts of time in these environments (e.g., home or work) increase your fluid intake to ensure your body is fully hydrated.

In a centrally heated environment, try placing water near a heat source e.g., under or near a radiator, as this will add moisture to the air.

If your throat feels dry, you could try inhaling steam. Do not put any scents, especially not menthol / Olbas oil in to the water, as these products are designed to dry out the mucous linings in the body.

15. Background noise
We tend to talk louder if our surroundings are noisy e.g., home, work, in the car, pubs / clubs, sports events etc. Often we are not aware of raising our voices even slightly e.g., in response to continuous sounds such as air conditioning.

Avoid speaking for long periods in noisy environments and wherever possible remove or reduce unnecessary noise e.g., turning the television off or down whilst speaking.

16. Reducing dryness
Sucking sugar free sweets (boiled sweets not medicated) and chewing gum helps to stimulate saliva flow. Many people find that pieces of fruit relieve dryness as well. Try
17. Hot compresses
These will help soothe an inflamed or painful throat and improve the blood circulation which helps to reduce oedema.

Fill a basin with hot water, soak and wring out a face flannel, fold it up and press it to your throat. Hold there until it cools down. Repeat three to four times. If you find this helpful, try to do it several times a day, especially when your throat is sore or tired.

18. Steam inhalation
All the air you breathe passes over your vocal cords. Steam inhalation will soothe them if they are dry, sore or irritated.

Half fill a large bowl or sink with a kettle of water which has just boiled. Sit comfortably and cover your head, shoulders and the bowl with a large towel. Breathe in and out through your mouth. Continue until the water stops steaming.

Your throat will need time to cool down after this so allow 30 minutes before you go out into cooler / outdoor air. Try to do this twice daily or more often if your throat is especially irritated. For a quicker option when you are on the go or at work for example, fill a cup with boiling water to steam.

Do not add any oils, for example Olbas oils, to the water as these will irritate the vocal cords rather than help. Two drops of camomile essential oil or one tablespoon of camomile flowers may be added if you wish as camomile contains a natural anti-inflammatory agent.

Contact details for Further Information
If you require any further information please contact the Speech and Language Therapy Department on Tel: 01472 875405 for Grimsby and 01724 290043 for Scunthorpe.

Concerns and Queries
If you have any concerns / queries about any of the services offered by the Trust, in the first instance, please speak to the person providing your care.

For Diana, Princess of Wales Hospital
Alternatively you can contact the Patient Advice and Liaison Service (PALS) on (01472) 875403 or at the PALS office which is situated near the main entrance.

For Scunthorpe General Hospital
Alternatively you can contact the Patient Advice and Liaison Service (PALS) on (01724) 290132 or at the PALS office which situated on C Floor.

Alternatively you can email: nlg-tr.PALS@nhs.net

Confidentiality
Information on NHS patients is collected in a variety of ways and for a variety of reasons (e.g. providing care and treatment, managing and planning the NHS, training and educating staff, research etc.). Everyone working for the NHS has a legal duty to keep information about you confidential. Information will only ever be shared with people who have a genuine need for it (e.g. your GP or other professionals from whom you have been
receiving care) or if the law requires it, for example, to notify a birth.

Please be assured however that anyone who receives information from us is also under a legal duty to keep it confidential.

**Zero Tolerance - Violent, Threatening and Abusive Behaviour**

The Trust and its staff are committed to providing high quality care to patients within the department. However, we wish to advise all patients/visitors that the following inappropriate behaviour will not be tolerated:

- Swearing
- Threatening/abusive behaviour
- Verbal/physical abuse

The Trust reserves the right to withdraw from treating patients whom are threatening/abusive/violent and ensuring the removal of those persons from the premises.

All acts of criminal violence and aggression will be notified to the Police immediately.

**Risk Management Strategy**

The Trust welcomes comments and suggestions from patients and visitors that could help to reduce risk.

Perhaps you have experienced something whilst in hospital, whilst attending as an outpatient or as a visitor and you felt at risk.

Please tell a member of staff on the ward or in the department you are attending/visiting.

**Moving & Handling**

The Trust operates a Minimal Lifting Policy, which in essence means patients are only ever lifted by staff in an emergency situation.

Patients are always encouraged to help themselves as much as possible when mobilising, and if unable to do so, equipment may be used to assist in their safe transfer.

If you have any questions regarding moving and handling of patients within the Trust, please speak to a member of staff in the ward or department you are visiting.

**Northern Lincolnshire and Goole NHS Foundation Trust**

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